

The Concerns about BIRD 95.6 from Cadence

Lance Wang

October 6, 2005

Outline

- History and Facts
- The Concerns
- Our Position

History and Facts

- IBIS needs solution(s) for working in the non-ideal power supply situations
- The contributions for BIRD 95/97/98 and related works are highly appreciated from Cadence
- Cadence works very actively for the solutions
 - A BIRD95 Working Group are dedicated for the studies and developments
 - This group contains 2 R&D Architects, 1 Technical Marketing Architect, 1 Product Specialist, 1 R&D Engineer and 1 R&D Intern (include legendary C.Kumar)
 - This group has the weekly meeting to discuss the technical and progress
 - This group is directly supported by R&D Directors, Marketing Directors and up to Division GM and Corporate VP
- Current BIRD 95.6 still remains many concerns

The Concerns

- General Technical Issues
 - Unclear Buffer Ground parasitic effects
 - Neither scientific proof nor test case
 - Unsolved Dynamic C_Comp effects
 - Why additional current only thru Power to Ground, Why not other paths
 - Unclear implementation method, such as I/T tables
 - There is no scientific (formula based) proof for whole implementations
 - Unclear (positive or negative) impacts on other related BIRD and studies
 - How many more things we need to add into IBIS to get whole PDS IBIS solution?

The Concerns

- Practical Issues

- It is very difficult to use measurement for I/T table
- There is almost no way using measurement to verify BIRD 95.6 contents
- There is no way to use only BIRD 95.6 before all other limitations disappeared, such as, ground parasitic case, gate modulation, etc. No one will convert all the package ground parasitics to power parasitics for you!
- What kind of model types could BIRD 95.6 apply to?

The Concerns

- BIRD 95.6 text is unclear
 - There is No ZVDDQ in the BIRD 95.6. Very misleading!
 - What is the relationship between ZVDDQ and Package Model, ICM? What if conflicts?
 - How does the network impact ZVDDQ, I/T tables, C_comps, etc.?

The Concerns

- There might be more concerns and issues after we solve the current concerns in the BIRD 95.6

Our Position

- Using IBIS in the non-ideal power supply network is a very complex problem
- IBIS needs to have a “whole picture” solution rather than piece by piece
- IBIS needs a practical solution that can be verified by measurement and simulation
- IBIS should solve the concerns before BIRD 95.6 vote
- EDA Vendors should not take the risks to implement any incomplete solutions
- Cadence is working for this kind of solutions and will continue to work on this